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动物分类学报

BACULENTULUS CHANGCHUNENSIS SP. NOV. FROM JILIN PROVINCE, CHINA (PROTURA, BERBERENTOMIDAE)

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Abstract During a survey of soil fauna , about 100 proturan specimens were obtained from Changchun City , Jilin Province , Northeast China in 2005. In the collection , Baculentulus changchunensis sp. nov. is new to science. Holotype and paratypes are deposited in Institute of Plant Physiology & Ecology , Shanghai , China.
Key words Protura , Berberentomidae , Baculentulus , new species , China.

1 Introduction

In recent years , many new species of proturan were found in China (Bu et al. , 2007a ; Bu et al. , 2007b). The genus Baculentulus , a member of the family Berberentomidae , was established by Tuxen in 1977 with type species Berberentulus becki Tuxen 1976. Up to now , thirty-four species were described in the world (Nakamura , 2004) and ten species of them known in China (Yin , 1999 ; Chao et al. , 1999). In the present paper , a new species of Baculentulus is described and illustrated.

2 Abbreviations

a : additional seta. a , b , c , d , e , f , g : exterior sensilla on foretarsus. a′, c′: interior sensilla on foretarsus. A1-A5 : anterior setae. Ac : central anterior seta. M : middle seta. ls : lateral seta. pp : postpseudocular seta. P1-P5 : posterior setae. t-1-t-3 : dorsal sensilla on foretarsus. α: dorsal seate on foretarsus. β: ventral setae on foretarsus. γ: interior setae on foretarsus. δ: exterior seate on foretarsus. BS : ratio of distance between the proximal end and t-1/ distance between t-1 and distal end on foretarsus. CF : ratio of length of head / length of hind part of maxillary gland. EU : ratio of length of the empodium/length of the claw. PR : ratio of length of the head/length of pseudoculus. TR : ratio of foretarsal length/length of the claw.

3 Taxonomy

Baculentulus changchunensis sp. nov. (Figs. 1-19)

Diagnosis. The new species is distinguished from all the other species of Baculentulus by the chaetotaxy with P1a absent on urotergites Ⅰ- Ⅶ, by the characteristics of the foretarsal sensillae , such as sensillum a′a little broad and distal to t-1 , both apices of f and g surpassing tarsus , and by the shape of sensilla of labial palpus and female squama genitalia.

Body length : 1 150 μm.

Head 125 μm long in dorsal view , setae pp and ls present and a absent (Fig. 1). A meidan pore present. Rostum not protruded. Pseudoculus almost circular , with two small lids (Fig. 2) , PR = 13. 3. Canal of maxillary gland simple (Fig. 3) , the proximal part 13 μm long without distinct posterior dilation , CF = 9. 6. Maxillary palpus with two sensillum (Fig. 4) , slender. Labial palpus rudimentary , with three setae and one stout and foliaceous sensilla (Figs. 5).

Legs. Foretarsus (Figs. 6 , 7) length 100 μm , claw 19 μm , without inner and outer flap , TR = 5. 26 ; Empodium length 4 μm , EU = 0. 21 ; S-shaped seta longer than claw , 25 μm. Dorsal sensillum t-1 baculiform , BS = 0. 66 ; t-2 slim ; t-3 relatively long and lanceolate. Exterior sensillum a normal , surpassing base of b and c , reaching base of d ; b short , about a half of c in length , at about the same level as c ; c and d very close to each other , the apex of c surpassing e , the apex of d reaching the base of f ; e not surpassing tarsus ; f distinctly nearer to e than to g , both apices of f and g surpassing tarsus ; Interior sensillum a′a little broad and distal to t-1 ; b′absent ; c′thin and its apex surpassing the base of δ6. Ventral seta β1 and interior seta δ4 both short and sensilla-like , 3-5 μm. Interior setae δ1 , δ2 , δ3 and δ5 each short , but longer than δ4 , 10-15 μm , and apically pointed. Pores present between a and α3 , and between t-3 and g , respectively. Middle tarsus length 45 μm , claw length 15 μm. Hind tarsus length 50 μm , claw length 15 μm.

Body. Chaetotaxy as shown in Table 1 and Figs. 8-15. Seta P5a on thoracic tergites Ⅱ and Ⅲ rudimentary , minute about 2 μm , respectively , A2 and M2 on thoracic sternite Ⅰ and A2 on thoracic sternites Ⅱ and Ⅲ short and sensillum-like , about 5 μm ; P1a

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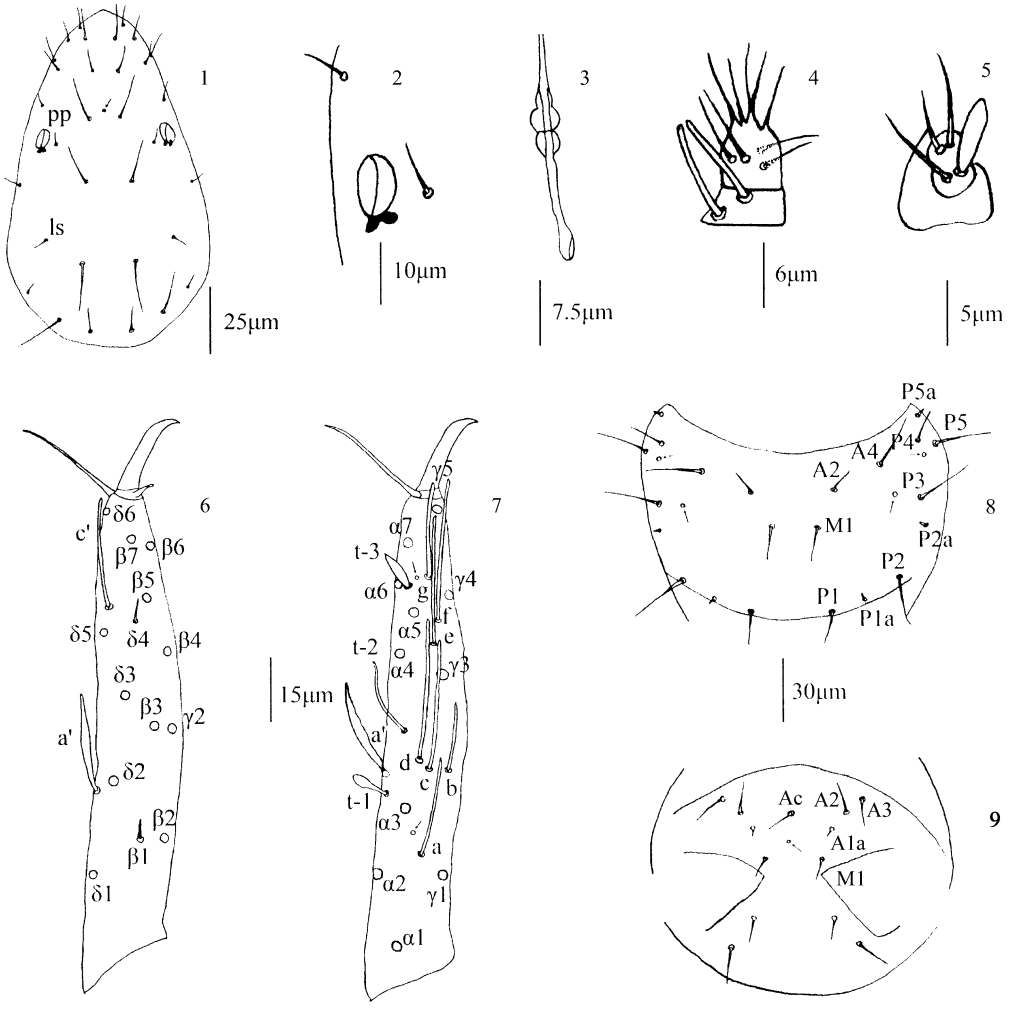
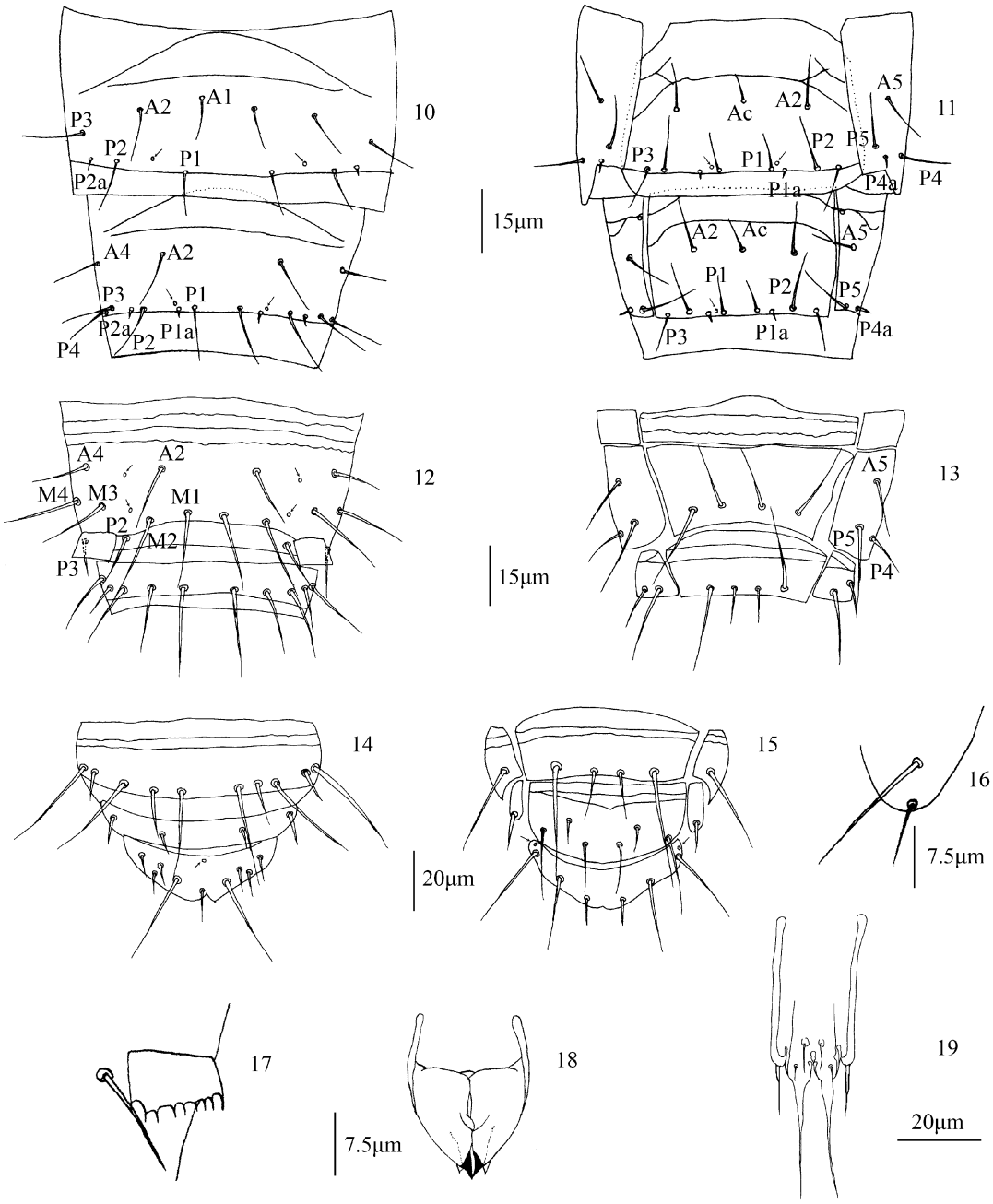


Figs. 1-9. Baculentulus changchunensis sp. nov. 1. Head, dorsal view. 2. Pseudoculus. 3. Canal of maxillary gland. 4. Maxillary palpus. 5. Labium. 6. Foretarsus, interior view. 7. Foretarsus, exterior view. 8. Mesonotum. 9. Mesosternum. Arrows indicate pores.

Table 1. Chaetotaxy of Baculentulus changchunensis sp. nov.

	Dorsal		Ventral	
	Formula	Composition of setae	Formula	Composition of setae
Thorax				
I	4	1, 2	4 - 4 / 6	A1, 2, M1, 2 P1, 2, 3
II- III	6 / 16	A2, 4, M1 P1, 1a, 2, 2a, 3, 4, 5, 5a	7 - 2 / 4	Ac, 1a, 2, 3, M1 P1, 2
Abdomen				
I	6 / 10	A1, 2, 5 P1, 2, 2a, 3, 4,	3 / 2	Ac, 2 P1,
II- III	6 / 14	A1, 2, 5 P1, 2, 2a, 3, 4, 4a, 5	3 / 5	Ac, 2 Pc, 1a, 2
IV- VI	6 / 14	A1, 2, 5 P1, 2, 2a, 3, 4, 4a, 5	3 / 8	Ac, 2 P1, 1a, 2, 3
VII	6 / 16	A 2, 4, 5 P1, 1a, 2, 2a, 3, 4, 4a, 5	3 / 8	Ac, 2 P1, 1a, 2, 3
VIII	6 / 16	A2, 4, 5 M1, 2, 3, 4; P2, 3, 4, 5	4	1, 2
IX	14	1, 2, 3, 3a, 4, 4a, 5	4	1, 2
X	12	1, 1a, 2, 2a, 4, 5	4	1, 2
XI	6	2, 4, 5	6	1, 2, 3
XII	9	M, 1, 1a, 2, 3	6	1, 2, 3

and 2a on thoracic tergites II and III, P2a and 4a on abdominal tergites II- VI, P1a on abdominal sternite II- VII, P1a, P2a, and P4a on abdominal tergites VII short and lanceolate, about 3μm.



Figs. 10-19. Baculentulus changchunensis sp. nov. 10. Urotergites Ⅵ-Ⅶ 11. Urosternites Ⅵ-Ⅶ 12. Urotergites Ⅷ-Ⅸ 13. Urosternites Ⅷ-Ⅸ 14. Urotergites Ⅹ-Ⅻ 15. Urosternites Ⅹ-Ⅻ 16. Abdominal appendage Ⅱ. 17. Comb on abdominal tergite Ⅷ 18. Female squama genitalis. 19. Male penis. Arrows indicate pores.

Integumental pores distinct (Figs. 8-12, 14, 15). Thoracic tergite Ⅱ with two pairs of pores, of which one is between A2 and P3 and the other posterior to P4; Ⅲ with a pair of pores anterior to P3. Abdominal tergites Ⅰ-Ⅵ with a pair of pores between P1 and P2; Ⅶ with two pairs of pores, of which one is between P3 and P4 and the other close to P1a; Ⅰ-Ⅶ also with a pair of rotary wheels at anterior part of pleura; Ⅷ with two pair of pores, of which one is between M2 and M3 and the other between A2 and A4 without pectinates. Thoracic sternites Ⅱ and Ⅲ with one pore posterior to Ac. Abdominal sternites Ⅴ and Ⅵ with a pair of pores close to P1; Ⅳ and Ⅶ with one pore close to one of P1. Telson with a dorsal central pore and a pair of ventral pores at both sides.

Abdominal appendages Ⅱ and Ⅲ each with two setae, lateral apical seta shorter than half of the subapical one in length (Fig. 16). On abdomen Ⅷ, striate band reduced (Fig. 12); comb slightly oblique and with about 8-9 teeth (Fig. 17). Female squama genitalia relatively long, with acrostyli short subuliform (Fig. 18). Male penis is shown in Fig. 19.

Younger instars. Unknown.

Holotype female, from the coniferious forest of

Chaoyang Park (43°52′N, 125°18′E), Changchun City, Jilin Province, Northeast China, collected by Dr. WU Dong-Hui, Aug. 2005. Paratypes: 2 female, 2 males, same data as holotype. Holotype and paratypes deposited in Shanghai Institute of Plant Physiology & Ecology, Shanghai, China. Distribution Presently known only from Changchun city, Jilin Province, Northeast China.

Biology. Unknown.

Etymology. The species is named after Changchun City where the type specimens were collected.

Remarks. The new species is similar to B. weinerae (Szeptycki and Imadaté1987) from North Korea, and B. densus (Imadaté1960) from Japan in chaetotaxy. On urotergites Ⅰ-Ⅵ, three pairs of anterior setae, A1, A2 and A5, present and P1a absent. On urotergite Ⅶ, A2, A4 and A5 present, but A1 lacking and P1a present. It can be distinguished from B. weinerae by the characteristics of the foretarsal sensillae such as the position of a′and the length of f and g, by the shape of canal of maxillary glanda and CF, and by the shape of comb on abdomen Ⅷ; from B. densus by the characteristics of the foretarsal sensillae such as the length of t-3, both apices of f and g surpassing tarsus, by the shape of sensilla of labial palpus and female squama genitalia.

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中国原尾虫巴蚖属一新种 (原尾纲, 蹶蚖科)

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摘 要 报道了采自我国东北地区吉林省长春市原尾虫1新种, 长春巴蚖 Baculentulus changchunensis sp. nov.。新种与采自朝鲜的 B. weinerae Szeptycki and Imadaté, 1987 以及采自日本的 B. densus Imadaté, 1960 毛序相似, 均为腹部 Ⅰ～Ⅵ节背板 P1a 毛缺失。其与前者差别主要在于前跗感觉毛 a 位置、f 和 g 长度、颚腺形状、栉梳形状和齿数, 与后者差别主要体现在前跗感觉毛 t-3大小、f 和 g 末端位置、下唇须感觉毛形状和雌性生殖器。新种模式标本保存在中国科学院上海植物生理生态所昆虫博物馆。

关键词 原尾纲, 蹶蚖科, 巴蚖属, 新种, 中国.

中图分类号 Q969.11